	Universitas Negeri Surabaya Faculty of Social and Legal Sciences Geography Education Masters Study Program	Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
INSTRUMENT PREPARATION, PROCESSING AND DATA ANALYSIS	8710202008	Compulsory Study Program Subjects	T=2	P=0	ECTS=4.48	2	April 28, 2023

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
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Learning model	**Project Based Learning**

Program Learning Outcomes (PLO)

PLO study program that is charged to the course	
PLO-5	Able to solve scientific problems through research and development activities using geographic technology based on scientific principles
PLO-10	Mastering geographic education problems based on the concept of transformative constructive education to understand the concept of structuring regional potential by using geographic technology in the education system in educational institutions and society

Program Objectives (PO)	
PO - 1	Have awareness and responsibility for rational thinking through scientific procedures within an academic framework
PO - 2	Have the sensitivity to recognize problems that require academic solutions
PO - 3	Able to analyze the stages and parts of a scientific research plan
PO - 4	Able to plan and prepare research proposals

PLO-PO Matrix

P.O	PLO-5	PLO-10
PO-1		
PO-2		
PO-3		
PO-4		

PO Matrix at the end of each learning stage (Sub-PO)

P.O	Week															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PO-1																
PO-2																
PO-3																
PO-4																

Short Course Description	Discusses measures of central tendency and measures of dispersion; sampling and estimation include probability and probability distribution; sampling concept; mean and percentage estimates; significance tests include; analysis of variance and covariance; basics of multiple regression analysis; nonparameric statistics; Able to utilize statistics to harmonize research data, especially in education.

References

Main :

1. William RD and Matthew Goldstein. (1984). Multivariate analysis. methods and application. New York: John Wiley
2. Draper, N., dan Smith, H., (1992). Analisis Regresi Terapan (Edisi Kedua). Alih bahasa Bambang Sumantri. Gramedia Pustaka Utama, Jakarta
3. Leedy, Paul. (1980). Practical Research Planning and Design 2nd ed. New York : Macmillan Publishing Co. Inc.
4. Sugiono. 2014. Statistika Untuk Penelitian. Bandung Alfabeta.
5. Mills, G. E. (2003). Action research: a guide for the teacher research. Jersey: Prentice Hall.
6. Vockell, E. L. and Ansher, J. W. (1995). Educational research. Prentice-Halal. Inc.

Supporters:

	1. Walter R. Borg and Meredith D. Gall. Education Research: An Introduction. Fourth Edition, Longman Inc, New York
Supporting lecturer	Dr. Bambang Sigit Widodo, M.Pd. Dr. Fahmi Fahrudin Fadirubun, M.Pd

Week-	**Final abilities of each learning stage (Sub-PO)**	**Evaluation**		**Help Learning, Learning methods, Student Assignments, [Estimated time]**		**Learning materials [References]**	**Assessment Weight (%)**
		Indicator	**Criteria & Form**	**Offline (*offline*)**	**Online (*online*)**		
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
1	Understand statistical concepts	1. Explain statistical concepts 2. Explain population and sample 3. Explain the measurement scale	**Criteria:** Students are able to explain, give examples, analyze conceptually and systematically **Form of Assessment** : Project Results Assessment / Product Assessment	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Followed by independent tasks in compiling articles, presentations, the lecturer facilitates class discussions and questions and answers. 2 X 50	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Followed by independent tasks in compiling articles, presentations, the lecturer facilitates class discussions and questions and answers. 2 x 50	**Material:** statistical concepts **Reader:** *Sugiono. 2014. Statistics for Research. Bandung Alphabeta.*	10%
2	Understand the measure of central tendency and measure of dispersion	Explain measures of central tendency and measures of dispersion	**Criteria:** Students are able to explain, give examples, analyze conceptually and systematically **Form of Assessment** : Project Results Assessment / Product Assessment	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers. 2 X 50	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers.	**Material:** statistical concepts **Reader:** *Sugiono. 2014. Statistics for Research. Bandung Alphabeta.*	10%
3	Understand probability and probability distribution	Explain probability and probability distribution	**Criteria:** Students are able to explain, give examples, analyze conceptually and systematically **Form of Assessment** : Project Results Assessment / Product Assessment	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers. 2 X 50	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers. 2 x 50	**Material:** probability and probability distribution **Reader:** *Sugiono. 2014. Statistics for Research. Bandung Alphabeta.* **Material:** probability and probability distribution **Reference:** *Draper, N., and Smith, H., (1992). Applied Regression Analysis (Second Edition). Bambang Sumantri's translation. Gramedia Pustaka Utama, Jakarta*	0%

4	Understand the concept of sampling	Explain the concept of sampling	**Criteria:** Students are able to explain, give examples, analyze conceptually and systematically **Form of Assessment** : Project Results Assessment / Product Assessment	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers. 2 X 50	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers. 2 x 50	**Material:** sampling concept **Reader:** *Sugiono. 2014. Statistics for Research. Bandung Alphabeta.* **Material:** sampling concept **Bibliography:** *William RD and Matthew Goldstein. (1984). Multivariate analysis. methods and applications. New York: John Wiley*	5%
5	Understand average and percentage estimation	Explain the average and percentage estimates	**Criteria:** Students are able to explain, give examples, analyze conceptually and systematically **Form of Assessment** : Project Results Assessment / Product Assessment	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers. 2 X 50	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers. 2 x 50	**Material:** average and percentage estimates. **Reference:** *William RD and Matthew Goldstein. (1984). Multivariate analysis. methods and applications. New York: John Wiley* **Material:** average and percentage estimates **Reference:** *Leedy, Paul. (1980). Practical Research Planning and Design 2nd ed. New York: Macmillan Publishing Co. Inc.*	5%
6	Understand analysis of variance and covariance	Explain analysis of variance and covariance	**Criteria:** Students are able to explain, give examples, analyze conceptually and systematically **Form of Assessment** : Project Results Assessment / Product Assessment	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers. 2 X 50	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers. 2 x 50	**Material:** analysis of variance and covariance **Reader:** *Sugiono. 2014. Statistics for Research. Bandung Alphabeta.*	10%
7	Understand correlation analysis	Explain correlation analysis	**Criteria:** Students are able to explain, give examples, analyze conceptually and systematically **Form of Assessment** : Project Results Assessment / Product Assessment	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers. 2 X 50	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers. 2 x 50	**Material:** correlation analysis **Reader:** *Sugiono. 2014. Statistics for Research. Bandung Alphabeta.*	5%
8	UTS		**Criteria:** Students are able to explain, give examples, analyze conceptually and systematically	UTS 2 X 50	UTS 2 x 50	**Material:** research methodology **Reader:** *Sugiono. 2014. Statistics for Research. Bandung Alphabeta.*	5%

9	Understand multiple regression analysis	Explain multiple regression analysis	**Criteria:** Students are able to explain, give examples, analyze conceptually and systematically **Form of Assessment** : Project Results Assessment / Product Assessment	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers. 2 X 50	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers. 2 x 50	**Material:** multiple regression analysis **References:** *Draper, N., and Smith, H., (1992). Applied Regression Analysis (Second Edition). Bambang Sumantri's translation. Gramedia Pustaka Utama, Jakarta*	5%
10	Understand nonparameric statistics	Explain nonparameric statistics	**Criteria:** Students are able to explain, give examples, analyze conceptually and systematically **Form of Assessment** : Project Results Assessment / Product Assessment	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers. 2 X 50	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers. 2 x 50	**Material:** nonparameric statistics **Reader:** *Sugiono. 2014. Statistics for Research. Bandung Alphabeta.*	5%
11	Understand cluster analysis	Explain cluster analysis	**Criteria:** Students are able to explain, give examples, analyze conceptually and systematically **Form of Assessment** : Project Results Assessment / Product Assessment	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers. 2 X 50	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers. 2 x 50	**Material:** cluster analysis **Bibliography:** *William RD and Matthew Goldstein. (1984). Multivariate analysis. methods and applications. New York: John Wiley*	10%
12	Understand factorial analysis	Explain factorial analysis	**Criteria:** Students are able to explain, give examples, analyze conceptually and systematically **Form of Assessment** : Project Results Assessment / Product Assessment	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers. 2 X 50	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers. 2 x 50	**Material:** factorial analysis **Bibliography:** *William RD and Matthew Goldstein. (1984). Multivariate analysis. methods and applications. New York: John Wiley*	10%

13	Understand discriminant analysis	Explaining Discriminant Analysis	**Criteria:** Students are able to explain, give examples, analyze conceptually and systematically **Form of Assessment** : Project Results Assessment / Product Assessment	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers. 2 X 50	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers. 2 x 50	**Material:** discriminant analysis **Bibliography:** *William RD and Matthew Goldstein. (1984). Multivariate analysis. methods and applications. New York: John Wiley*	10%
14	Understand Correspondence analysis/MDS (Multi Dimensional Scaling)	Explain Correspondence analysis/MDS (Multi Dimensional Scaling)	**Criteria:** Students are able to explain, give examples, analyze conceptually and systematically **Form of Assessment** : Project Results Assessment / Product Assessment	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers. 2 X 50	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers. 2 x 50	**Material:** Correspondence/MDS (Multi Dimensional Scalling) **References:** *William RD and Matthew Goldstein. (1984). Multivariate analysis. methods and applications. New York: John Wiley*	5%
15	Understand statistics to align research data, especially in education.	Explaining statistics to harmonize research data, especially in education.	**Criteria:** Students are able to explain, give examples, analyze conceptually and systematically **Form of Assessment** : Project Results Assessment / Product Assessment	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers. 2 X 50	Lecturer makes presentations, and facilitates class discussions, questions and answers, and practicums. Continued with independent assignments to prepare articles, presentations, lecturers facilitate class discussions and questions and answers. 2 x 50	**Material:** harmonizing research data, especially in education. **Bibliography:** *Walter R. Borg and Meredith D. Gall. Educational Research: An Introduction. Fourth Edition, Longman Inc., New York* **Material:** harmonizing research data, especially in education. **References:** *Vockell, EL and Ansher, JW (1995). Educational research. Prentice-Halal. Inc.*	5%
16	UAS		**Criteria:** Students are able to explain, give examples, analyze conceptually and systematically **Form of Assessment** : Test	UAS 2 X 50	UAS 2 x 50	**Material:** research methodology **Reader:** *Sugiono. 2014. Statistics for Research. Bandung Alphabeta.*	5%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Project Results Assessment / Product Assessment	95%
2.	Test	5%
		100%

Notes

1. **Learning Outcomes of Study Program Graduates (PLO - Study Program)** are the abilities possessed by each Study Program graduate which are the internalization of attitudes, mastery of knowledge and skills according to the level of their study program obtained through the learning process.

2. **The PLO imposed on courses** are several learning outcomes of study program graduates (CPL-Study Program) which are used for the formation/development of a course consisting of aspects of attitude, general skills, special skills and knowledge.
3. **Program Objectives (PO)** are abilities that are specifically described from the PLO assigned to a course, and are specific to the study material or learning materials for that course.
4. **Subject Sub-PO (Sub-PO)** is a capability that is specifically described from the PO that can be measured or observed and is the final ability that is planned at each learning stage, and is specific to the learning material of the course.
5. **Indicators for assessing** ability in the process and student learning outcomes are specific and measurable statements that identify the ability or performance of student learning outcomes accompanied by evidence.
6. **Assessment Criteria** are benchmarks used as a measure or measure of learning achievement in assessments based on predetermined indicators. Assessment criteria are guidelines for assessors so that assessments are consistent and unbiased. Criteria can be quantitative or qualitative.
7. **Forms of assessment:** test and non-test.
8. **Forms of learning:** Lecture, Response, Tutorial, Seminar or equivalent, Practicum, Studio Practice, Workshop Practice, Field Practice, Research, Community Service and/or other equivalent forms of learning.
9. **Learning Methods:** Small Group Discussion, Role-Play & Simulation, Discovery Learning, Self-Directed Learning, Cooperative Learning, Collaborative Learning, Contextual Learning, Project Based Learning, and other equivalent methods.
10. **Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
11. **The assessment weight** is the percentage of assessment of each sub-PO achievement whose size is proportional to the level of difficulty of achieving that sub-PO, and the total is 100%.
12. TM=Face to face, PT=Structured assignments, BM=Independent study.